

THE ELECTRICITY OF LIFE

Researcher Phil Callahan finds that we are only now rediscovering the secrets of nature's electrical frequencies.

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Bounce an electric charge from end to end of a length of insulated wire and you have an 'oscillating circuit'. The oscillating current that it carries will reduce to zero very quickly as this electrical energy is dissipated.

If we hook up a length of wire to an alternating current charging circuit that is tuned to the natural frequency of that wire, then it will push charge into and pull charge out of that wire very efficiently because these two circuits are in resonance. We may also notice that in this resonant condition our length of wire drains power from the charging circuit. Where does that energy go?

If we lay out a second identical length of wire parallel to the first and connect one end across an AC millivoltmeter to earth, we will find that whenever the charging circuit to the first wire is switched on, an oscillating current is set up in the second wire. This happens even when these two wires are too far apart for their electric and magnetic fields to interact. Why?

WIRELESS TELEGRAPHY

The answer is that we have just re-invented wireless telegraphy. Our lengths of wire are acting as antennae. In the first wire, a standing electric wave converts electrical energy into electromagnetic radiant energy, which radiates at right-angles to the wire. In the second wire, electromagnetic radiant energy of the appropriate frequency strikes the wire at right-angles and sets up a standing electric wave along its length of the same or a resonant frequency.

We could now telegraph messages from our 'transmitter' to our 'receiver' without having to run a connecting wire between them.

LAKHOVSKY & HOMING PIGEONS

Georges Lakhovsky (*The Secret of Life*, Paris, 1925, in French) was a Russian-born French radio engineer. During World War I, it was found that carrier pigeons often became confused and lost whenever one of the newfangled spark-gap wireless transmitters was operating. Lakhovsky noted that within the pigeon's head the semi-lunar canals (composed of saline fluid within fatty tubes) were electrically analogous to the loop aerials (directional antennae) used for locating wireless transmitters and that they must act as oscillating circuits. Moreover, the pigeon was equipped with six semi-lunar canals arranged as three stereoscopic pairs mutually at right-angles to each other. Lakhovsky noted that upon release, pigeons circled about three times before setting off on a homing journey. He theorised that the semi-lunar canals were activated by flight—as the bird moved through varying electric and magnetic environments in space, so currents were generated that fed directly into the pigeon's brain and provided it with richly sensitive navigational information.

The spark-gap wireless transmitter effectively jammed any such sensitive navigation systems within about 20 miles, much as the spark of an electric welder will blot out signals to a nearby AM radio receiver.

CELLULAR OSCILLATORS & THE LIFE FIELD

Lakhovsky realised that living cells themselves contained numerous structures with the qualities of oscillating circuits and which must therefore both radiate and resonate with electromagnetic radiation of wavelengths appropriate to their size.

In Lakhovsky's view, the summation of these cellular radiations formed a "Life Field" about the living organism. Health equated to a strong and harmonious Life Field; disease was a disharmony that weakened the Life Field; and death was the dissolution of the Life Field.

Lakhovsky pointed out that cellular oscillators could be detuned by accumulating toxins

from an unhealthy diet or lifestyle, thus weakening the Life Field; that infections involved a battle for radiative dominance between pathogen and host; and that environmental radiations had a substantial influence upon the Life Field that was often disruptive. He theorised that high energy cosmic radiation generated a confusion of secondary radiations in conductive features within 100 metres of the Earth's surface, and produced correlative maps of cancer incidence versus rock conductivity to support his thesis.

THE LAKHOVSKY COIL

The "Lakhovsky Coil" was a single spiral whorl of thick insulated single-strand copper wire designed to shield the wearer against such adverse telluric radiations through the induction of out-of-phase radiations that cancelled them out. This oscillating circuit appears to have been quite successful for plants, animals and people.

RADIO-CELLULO-OSCILLATOR

Lakhovsky found with this 1923 device that broadband (i.e., multiple frequency) ultra-short radio waves could stimulate plant growth and health, yet he was unhappy with the heating side-effects and with imposing 'foreign' electromagnetic radiations upon cellular oscillators in order to stimulate them to emit their natural radiations.

He realised that the cellular oscillators could be energised by capacitance, using high voltage alternating electric fields at resonant multiple frequencies. To minimise generation of electromagnetic radiations by the apparatus, very low currents and very high voltages would be required to charge and discharge the capacitor elements.

THE MULTIWAVE OSCILLATOR

With his 1931 "Multiple Wave Oscillator" (MWO), Lakhovsky tuned a Tesla coil to push/pull surface electric charge into and out of one end of an incomplete 60 cm-diameter loop of hollow tubing finished with spherical ends and polished to discourage arcing. Within this loop that was cyclically pumped and sucked of electric charge to about 250,000 volts, lay a nest of 11 similar loops reducing in size and tubing diameter in a linear series and with their gaps alternating from above to below between adjacent loops, the whole being suspended by an 'x' of silk thread.

The inner loops were charged by capacitance and their geometry and the use of surface ('electrostatic') currents permitted the achievement of multiple electric waves approaching optical frequencies. The simplicity of this array is pure genius!

CLINICAL USE OF THE MWO

An identical array with the outer loop earthed, acted as a 'ground plate' to focus the electric field of the active array energised by the Tesla coil. In use, these arrays were placed about 1.5 metres apart with the patient sitting (all metal adornments removed) on a wooden stool midway between. Exposures were of 5 to 15 minutes' duration about three times per week. The strategy was to stimulate every cellular oscillator to radiate very strongly and then let the Life Field settle down into a new dynamic harmony.

The 1951 second edition English translation

by Mark Clement of Lakhovsky's *The Secret of Life* contains a translator's appendix that clearly shows that Lakhovsky's MWO and "Coil" worked very well, so supporting his theories.

Overall, the MWO effects were described as "rejuvenation", each patient experiencing a feeling of increased well-being from the treatment. Subsequently, the amelioration of a wide variety of degenerative conditions was recorded by clinicians, including the resorption of tumours, pain relief, healing of radium burns, younger skin, improved physiological and physical performances. No adverse side-effects whatsoever were observed.

LAKHOVSKY REVIEWED

Lakhovsky (an outspoken anti-Nazi) fled Paris for New York in 1941, where in

1942 he died. His work (which was popular in Europe) was one of the hidden casualties of World War II.

In the 1960s, one of his MWOs was unearthed in a New York cellar and interpreted as a rather primitive electromagnetic device. It has taken almost 30 more years for Lakhovsky's genius to become appreciated, yet his 1931 MWO has never been duplicated.

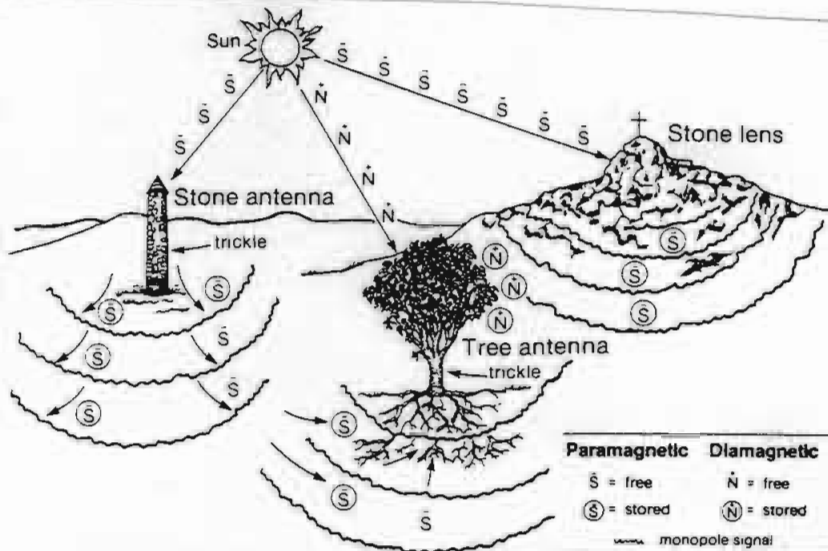
The Secret of Life shows that Lakhovsky's vision far exceeded his familiarity with biology and its jargon. His book has to be read as a literal translation from the 1925 French of a layperson with regard to biology. However, his engineering and observation skills were superb and his book warrants careful study in the light of post-1925 advances in knowledge.

LIFE FIELD HOLOGRAMS

What is very clear in 1993 is that Lakhovsky's vision is correct. The Life Field exists in the form of a complex and dynamic interference pattern whose hologram image coincides with its source emitters of coherent electromagnetic radiation, so providing a basic feedback system that coordinates and integrates cellular activity.

Within this system, the liquid crystal structure of water that

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Place of the magnetic poles in nature. A circle around the monopole means it is stored in the soil, stones or plants. Starting at the sun's magnetoelectric dipoles, the dipoles are torn apart by flare activity, and free magnetoelectric monopoles, south and north, head for earth across space. Most reach earth where the Ss are being adsorbed and stored by stone round towers, stone mountains such as the sacred mountain (shown with cross), and by paramagnetic soil. The N monopoles are adsorbed by plants such as the tree shown. Once adsorbed, they are stored as in a battery (circled monopoles).

shapes and directs biochemistry is proposed also to act as a holographic material structured by the interference pattern of the Life Field, such that the Life Field pattern exerts indirect homeostasis control over at least some aspects of cell physiology.

Other aspects, most probably those concerned with cellular differentiation (gene switching) and growth, appear to be directly controlled by the Life Field interference pattern.

In this view, homeopathic preparations work because they are water holographs of their active agents and so generate a radiative feedback response.

Direct radiative control is illustrated by the ultraviolet component of the Life Field of virus-infected cell cultures producing the same cellular changes in non-infected cultures through a quartz window.

PHIL CALLAHAN & THE RADIATIVE ENVIRONMENT

It is apparent that living creatures will interact with their radiative environments through resonance.

Philip S. Callahan, PhD, is pre-eminent amongst researchers in his unravelling of biological communications systems based upon coherent electromagnetic radiations. Callahan served as a technician with the USAAF on radio beam stations in Northern Ireland from 1943 and later in Japan, but remained totally oblivious to Lakhovsky's work for the next 45 years.

INSECTS AND INFRARED

Callahan (*Tuning In To Nature*, Devin-Adair, USA, 1975) discovered that scent molecules emit coherent (laser-like) infrared radiations when mechanically pulsed by sound at resonant frequencies.

Such radiations are similar to those of wireless telegraphy in that they can set up electric standing waves (oscillating currents) in

antennae tuned to the infrared frequency. These frequencies are so fast that their currents are best carried on the surface of insulating materials such as wax or glass ('dielectric' antennae) rather than in the body of a metal conductor.

Insect 'antennae' were found to abound in a rich variety of waxy waveguide structures, each linked to a sensory nerve such that each 'antenna' was actually a complex array of special-purpose antennae, capable as a whole of analysing incoming coherent infrared and translating it into patterns of nerve impulses.

Since the frequency of infrared from sound-pulsed scent molecules depends on both the air temperature and the dilution of the scent in air, insects have a highly sophisticated system to find food and mates. Callahan likens the flight of insects to that of an aircraft flying a radio beam.

Callahan also found that if traces of a fermentation product such as ammonia or alcohol were present, then the intensity of the sound-pulsed infrared increased at least tenfold. Plant-eating insects are therefore preferentially attracted to sick or dying plants, serving as nature's clean-up squad to recycle these into the soil.

Healthy, well-oxygenated plants do not attract overwhelming insect attacks provided that a natural diversity of insect-control organisms and their support vegetation is present.

Callahan points out that insects are not thinking creatures. Their behaviour is a genetically programmed reaction through their neural connections to environmental stimuli that are mainly in the infrared. Their behaviour could be readily controlled by electronic means that are non-polluting.

CRAWLING, FLYING PLANTS

The skins of insects and plants are remarkably similar in their electrical qualities. Both are piezoelectric, such that vibrations produce radio waves; and both have an impressive array of waxy spine structures which must have antenna qualities apart from being sharp to chew on.

The chief difference between insects and plants is that insects have nerves and muscles for mobility, whereas the plant equivalents of these have yet to be defined. Callahan finds it useful to think of insects as crawling, flying plants. After all, plants may yet turn out to be smarter than insects (see *The Secret Life of Plants* and also *Secrets of the Soil* by Peter Tompkins and Christopher Bird).

RADIO FROM BEES & FLIES

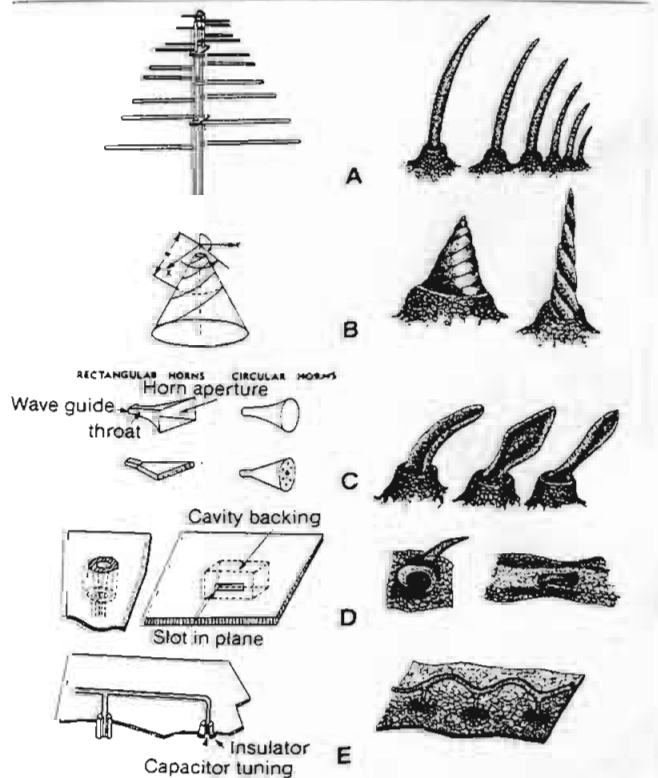
One of Phil Callahan's fans discovered that he could still hear bees and flies buzz when he replaced the microphone of his audio setup with an antenna. Included in this circuit was a Radio Shack audio amplifier that also acted as a broadband radio receiver, just like the one that Phil built as his personal early warning device during WWII. Phil says that if he ever heard German on his receiver he intended to be "somewhere else darned quick".

The radio emanations were a piezoelectric effect of wings stressing the exoskeleton during flight.

IRISH 'TOWERS OF POWER'

Ireland has a network of round towers built by early Christian monks between the 4th and 12th centuries AD. These were a hollow structure of paramagnetic sandstone capped by a conical stone roof and with an entrance typically 3 to 5 metres above ground to permit the optional packing of the tower base with clay, as if one were tuning an organ pipe. Internal structures were of wood and the top floor usually had four windows, windows being scarce at lower levels.

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Comparison of insect dielectric and man-made metal antennae. (A) Log periodic spacing; (B) Conical spiral type; (C) Horn and lens types; (D) Cavity types; (E) Loop types.

Callahan noted that the vegetation at the base of these towers was always lush and healthier than elsewhere (*Ancient Mysteries, Modern Visions*). The towers were laid out as if to form a map of the night sky.

Callahan constructed scale-model round towers from silicon carbide (carborundum) paper and tested these in a 3 cm radar beam to show that they functioned as antennae, the conical roof serving to collect and amplify stellar radiation which was then channelled down the tower and into the soil.

Radish shoots were grown under even artificial light about a scale-model tower. Net growth (biomass) was greater than the control (no tower) but distributed in a cloverleaf pattern centred about magnetic north that was typical of a magnetic antenna effect.

Another scale model tower was soaked in epsom salts and left to dry in an upright position. Crystals of epsom salts disclosed hotspots of magnetic energy as horizontal bands about the tower but with most energy concentrated in the top room just under the conical roof.

It is obvious that the Irish round towers were deliberately built as antennae powered by stellar energy. Such antennae are also transmitters. The tuned resonant cavity of a tower and the concentration of human activity in the top room suggest that each tower had a prime function as a broadcasting station whose message of biological harmony may well have been enhanced by monkish meditations.

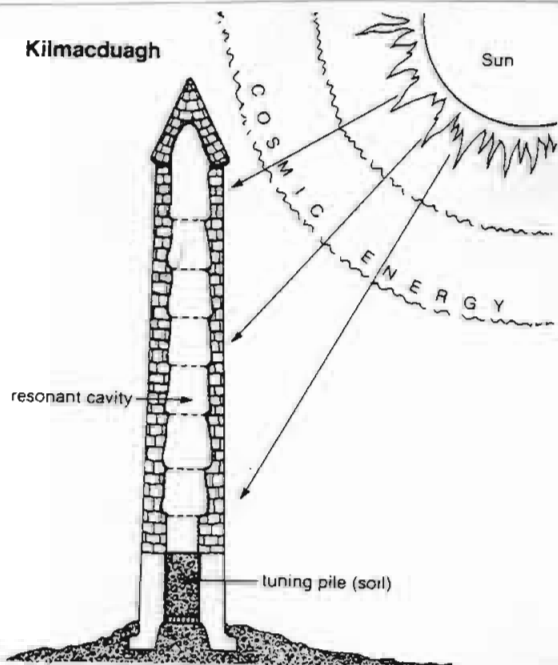
Callahan does not draw this conclusion directly, but notes that during active operation of these 'towers of power', Ireland was the spiritual and intellectual centre of Europe.

SOIL FERTILITY & MAGNETISM

Callahan points out that all fertile soils are paramagnetic, and that all diamagnetic soils are infertile. The susceptibility of materials to applied magnetic forces is a measure of the conductivity of these materials to magnetic and electromagnetic energies.

Magnetic susceptibility is an antenna quality. The other important antenna quality is shape.

Paramagnetic materials have no magnetic field of their own, yet



The tower at Kilmacduagh in County Galway, Ireland, thirty-four meters in length, is the tallest of the Irish round towers, which served, according to Professor Philip S. Callahan, as antennae to receive cosmic or magnetic energy. Part of the base below the doorway of such towers was filled with dirt. They could thus, according to Callahan, constitute a dirt 'tuning pile' for shortening or lengthening the paramagnetic rock antenna. (From *Magnetic Antennae and Ancient Agriculture*.)

they enhance an applied magnetic field and so have a positive magnetic susceptibility. Oxygen (4,000 cgs units) is the most paramagnetic of the elements. Igneous rocks such as granite or basalt are usually the most paramagnetic soil-making materials.

Diamagnetic materials have no magnetic field, but they weaken an applied magnetic field and so have negative magnetic susceptibility. Chlorine is about as diamagnetic as oxygen is paramagnetic. If organochlorine compounds are similarly diamagnetic, at least part of their high toxicity and resistance to microbial breakdown could be due to repression of the Life Field and dissipation of these radiative energies. Chlorine and organochlorines are the biggest single threat to life on this planet.

Ferromagnetic materials strongly enhance an applied magnetic field and may maintain a magnetic field of their own. They have a high positive magnetic susceptibility, but they also have inherent in their crystal structures the shapes that focus and project magnetic forces.

Crushed terracotta is paramagnetic, but contains a small proportion of particles that display ferromagnetism because their shapes act as antennae.

Soils of low magnetic susceptibility can be improved by ploughing in a mixture of crushed paramagnetic stone.

Model 'towers of power' can be constructed from paramagnetic materials to enhance energy flow in the soil. These work very well and their design can be modified to broadcast homeopathic remedies and/or biodynamic reagents and/or to discourage specific 'pests'.

ELF RADIO STUDIES

Extremely low frequency (ELF—less than 200,000 cycles per second) radio waves are found to be highly potent in affecting living organisms because they more readily resonate with brain wave rhythms than do the higher frequencies.

Callahan developed his "Photonic Ionic Cloth Radio Amplifier Maser" (PICRAM) ELF detector by combining the qualities of natural antenna substances.

All sorts of structures, both living and non-living, emit ELF radiations that can be readily detected and analysed into a spectrum of their component frequencies.

Callahan's studies into the ELF aspects of neolithic and later structures and of shamanic and agricultural practices within indigenous cultures around the world, show that our forebears applied a high degree of knowledge of the radiative relationships of life. Western civilisation is unique in its current ignorance of these relationships. It has lost sight of its roots. Callahan's insights (*Nature's Silent Music*) go a long way to redress this unhappy situation.

Pat Flanagan's colloidal ELF detector does the same job as the PICRAM detector, but uses the fields from electrically charged particles as waveguides for incoming radiations.

Such fields would be extended within paramagnetic environments but curtailed within diamagnetic environments.

Flanagan suggests that living protoplasm may employ the same principle. This could well explain why life needs a paramagnetic environment, particularly within the soil, and why the level of oxygen in our atmosphere is so critical to life. ∞

Prof. Phil Callahan is conducting a series of lectures and workshops in Victoria, New South Wales and South Australia during October '93. For tour details, phone (054) 73 4332 or (02) 799 3738.

Callahan's classic book, *Ancient Mysteries, Modern Visions*, has been reprinted in Australia. Copies are available on tour, or from Hugh Sangster on (08) 296 8848. Price: \$25 (inc. p&p).